

CLAIMS

1. A method of synchronizing data among a plurality of web servers,  
wherein each of the plurality of web servers is coupled to a common data server,

the method comprising:

retrieving a scheduled activation time from the data server;

prior to the scheduled activation time, retrieving updated data into staging  
caches in the plurality of web servers; and

at the scheduled activation time, copying data from the staging cache of  
each web server to an active cache of the web server.

2. A method as recited in claim 1 further comprising:

comparing a time associated with a clock in each web server to a time  
associated with a clock in the data server; and

adjusting the scheduled activation time on each web server by the time  
difference between the clock in the web server and the clock in the data server.

3. A method as recited in claim 1 wherein each web server contains a  
clock, and wherein the clocks in the plurality of web servers are not synchronized  
with one another.

4. A method as recited in claim 1 wherein the copying data comprises  
swapping an active data cache pointer with a staged data cache pointer.

5. A method as recited in claim 1 wherein no communications are required between the individual web servers to synchronize their data.

6. A method as recited in claim 1 wherein retrieving updated data into staging caches in the plurality of web servers is performed asynchronously.

7. A method as recited in claim 1 further comprising:  
after the scheduled activation time, updating data caches in the data server.

8. A method as recited in claim 1 further comprising:  
after the scheduled activation time, calculating a next scheduled activation time.

9. A method as recited in claim 1 further comprising:  
after the scheduled activation time, updating data caches in the data server and calculating a next scheduled activation time, wherein the updating and calculating are performed by the first web server to initiate a retrieval process after the scheduled activation time.

1           10.     A method as recited in claim 1 further comprising:

2           if an additional web server is coupled to the data server, then copying data  
3 from an active cache in the data server to an active cache in the additional web  
4 server.

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6           11.     A method as recited in claim 1 further comprising:

7           if one of the plurality of web servers is initialized, then copying data from  
8 an active cache in the data server to the active cache in the initialized web server.

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10          12.     A method as recited in claim 1 wherein the plurality of web servers  
11 comprise a web farm.

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13          13.     A method as recited in claim 1 wherein the plurality of web servers  
14 comprise a web farm, and wherein the plurality of web servers are load balanced  
15 using a domain name service (DNS) round-robin technique.

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17          14.     One or more computer-readable memories containing a computer  
18 program that is executable by a processor to perform the method recited in claim  
19 1.

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21          15.     A system comprising:

22           a plurality of web servers coupled to a common data server, wherein each  
23 of the plurality of web servers comprises:

24           a staging cache;

25           an active data cache coupled to the staging cache;

1, wherein the web server is configured to retrieve a scheduled  
2 activation time from the data server, and further configured to retrieve  
3 updated data from the data server into the staging cache prior to the  
4 scheduled activation time; and

5 wherein the web server is configured to copy data from the staging cache to  
6 the active data cache at the scheduled activation time.

7  
8 **16.** A system as recited in claim 15 wherein each web server contains a  
9 clock having an associated time, and wherein each web server is configured to  
10 compare the time associated with the clock in the web server to a time associated  
11 with a clock in the data server.

12  
13 **17.** A system as recited in claim 16 wherein each web server is further  
14 configured to adjust the scheduled activation time on the web server by the time  
15 difference between the clock in the web server and the clock in the data server.

16  
17 **18.** A system as recited in claim 15 wherein each web server contains a  
18 clock, and wherein the clocks in the plurality of web servers are not synchronized  
19 with one another.

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21 **19.** A system as recited in claim 15 wherein the web server is further  
22 configured to swap an active data cache pointer with a staged data cache pointer.  
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1           **20.**     A system as recited in claim 15 wherein each of the plurality of web  
2 servers is configured to update data caches in the data server after the scheduled  
3 activation time.

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5           **21.**     A system as recited in claim 15 wherein each of the plurality of web  
6 servers is configured to calculate a next scheduled activation time after the  
7 scheduled activation time.

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9           **22.**     A system as recited in claim 15 wherein the plurality of web servers  
10 comprise a web farm.

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12           **23.**     One or more computer-readable media having stored thereon a  
13 computer program comprising the following steps:

14                 retrieving a scheduled activation time from a data server;  
15                 prior to the scheduled activation time, retrieving updated data into a staging  
16 cache in a server;

17                 at the scheduled activation time, copying data from the staging cache in the  
18 server to an active cache in the server; and

19                 after the scheduled activation time, updating data caches in the data server  
20 and calculating a next scheduled activation time.

1           **24.**    One or more computer-readable media as recited in claim 23 further  
2 comprising:

3                comparing a time associated with a clock in each server to a time associated  
4 with a clock in the data server; and

5                adjusting the scheduled activation time on each server by the time  
6 difference between the clock in the server and the clock in the data server.

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8           **25.**    One or more computer-readable media as recited in claim 23  
9 wherein each server contains a clock, and wherein the clocks in the plurality of  
10 servers are not synchronized with one another.

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12           **26.**    One or more computer-readable media as recited in claim 23  
13 wherein updating data caches in the data server and calculating the next scheduled  
14 activation time are performed if another process has not yet updated the data  
15 caches or calculated the next scheduled activation time during a current data  
16 synchronization cycle.

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18           **27.**    One or more computer-readable media as recited in claim 23 further  
19 comprising:

20                if the server is initialized, then copying data from an active cache in the  
21 data server to the active cache in the initialized server.

1           **28.** One or more computer-readable media as recited in claim 23  
2 wherein the copying data comprises swapping an active data cache pointer with a  
3 staged data cache pointer.

4  
5 *Sum*  
6           **29.** A method of synchronizing data among a plurality of web servers,  
7 wherein each of the plurality of web servers is coupled to a common data server,  
8 the method comprising:

9           providing a scheduled activation time from the data server to each of the  
10 plurality of web servers;

11           communicating updated data into a staging cache in each of the plurality of  
12 web servers prior to the scheduled activation time; and

13           copying data from the staging cache of each web server to an active cache  
14 of the web server at the scheduled activation time.

15           **30.** A method as recited in claim 29 wherein the communicating  
16 updated data into a staging cache is performed asynchronously.

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18           **31.** A method as recited in claim 29 wherein the copying data comprises  
19 swapping an active data cache pointer with a staged data cache pointer.

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21           **32.** A method as recited in claim 29 wherein no communication is  
22 required between the web servers to synchronize their data.  
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33. One or more computer-readable memories containing a computer program that is executable by a processor to perform the method recited in claim 29.